Washington State On-Site Wastewater Technical Review Committee

Minutes for the December 4-5, 2002 Meeting

Approved on February 5, 2003 by Vote of the Committee

Washington State Department of
Health

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Note: The minutes periodically refer to "Items." Items are documents containing information on a subject being discussed. Items, with their descriptions/titles, are noted at the end of the minutes in the section entitled "List of Meeting Materials.

MEETING ATTENDEES

Members Present

1. Kevin Barry, Eastside Env. Hlth
2. Pam Denton, LHJ Field Staff
3. Scott Jones, Engineers
4. Melanie Kimsey, Dept of Ecology
5. Eric Knopf, Designers, Installers, O&M
6. Glenn Herriman, Wash. Assoc. of Realtors
7. Bill Peacock, Public sewer utilities
8. Tom Rogers, Proprietary Devices
9. Mike Vinatieri, Westside Env. Hlth

Guests Who Signed In or Presented

1. Brent Raasina, Snohomish Health District
2. Mark Allen, King County Health Dept. (Day 1)
3. Mark Nelson, Kittitas County Health Dept.
4. Peter Lombardi, Orenco Systems Inc.
5. Tom Guthrie, Chelan-Douglas Health District
6. Dean Bannister (Day 2)

DOH Staff

1. Kelly Cooper, Wastewater Program (Day 1)
2. Mamdouh El Aarag, Wastewater Program (Day 2)
3. Mark Soltman, Wastewater Program (Day 1)
4. Laura Benefield, Wastewater Program (Day 1)
5. John Eliasson, Wastewater Program
6. Dave Lenning, TRC Coordinator

7. Mike Morris, Manufacturer (Day 1)
8. Jim Patterson, RDC member (Day 1)

INTRODUCTION

Tom Rogers, Chair, called the meeting to order at approximately 10:30 a.m. on December 4, 2002 and at 8:20 am on December 5, 2002 in the meeting room of the BEST Inn in Ellensburg. The meeting on Day 1 began with brief introductions by each committee member, DOH staff, and the interested parties in the audience

MINUTES

October 9-10, 2002 Meeting Minutes Adoption – Dave Lenning indicated the minutes contained a mistake on page 5 of the minutes (in the motion by Scott Jones under agenda item 4, sub item 3). Scott Jones motion that was made, seconded and passed should read, "In the hydraulic loading rate table, the rates for septic tank effluent should apply to effluent with a $CBOD_5 > 25$ mg/L and $\leq$200 mg/L." By unanimous vote, the committee approved the October 9-10, 2002 TRC meeting minutes as amended.

ADMINISTRATIVE MATTERS

Dave Lenning reported on the Rule Development Committee process and the TRC report that had been presented at the October 24, 2002 RDC meeting. The RDC had agreed to the TRC recommendations for classifying the different soil types, as well as for hydraulic loading rates for the soils, both with septic tank effluent and with effluent meeting 25 mg/L $CBOD_5$ and 30 mg/L TSS standards.

SUMMARY OF TECHNICAL DISCUSSIONS

1. Summary of changes to the Aerobic Treatment Unit RS&G

a. Laura Benefield noted that at the last meeting questions were asked about fecal coliform sampling and whether we were talking about effluent or influent. She explained that the entire "treatment train" was being discussed. Influent referred to wastewater entering the treatment train (either just an ATU, or an ATU and a disinfection unit). "Effluent" referred to treated wastewater coming out of the treatment train, again either just an ATU or an ATU and a disinfection unit, depending on what the pretreatment components consisted of.

b. Tom Rogers questioned whether the July 31, 2003 date for the interim status of Category 1 ATUs treating high strength wastes was realistic. Is data being collected that will enable a decision to be made on a longer-term basis? Laura indicated she was continuing to try and obtain data, but was not meeting much success. She suggested that the date remain, that by then the committee may be able to decide what should be done on a permanent basis. She stated that the committee could, for example, decide to go with the ETV protocol. The committee agreed. Meanwhile, Laura will continue to try and get data.

2. Technical Issue #1 – Treatment Standards 1 & 2

a. John Eliasson summarized the current status of committee decisions that had been made on treatment standards/levels.

b. Eric Knopf questioned whether the numbers for septic tank effluent (treatment level 1) really were needed.
   - Eric was concerned that specific numbers may cause problems. Some qualification is needed to make it clear that these numbers are expectations of a properly operating septic tank receiving wastewater from a residence.
   - Kevin Barry responded that that was not the purpose of the treatment level table.
   - Mark Soltman stated the numbers are intended to be used only in a product testing setting, not in the field. Maybe another set of numbers to be used in the field should also be established.

c. Kevin Barry and Mark Soltman both suggested that the footnote applying to treatment level #1 (residential septic tank effluent with an outlet filter) be removed. Treatment level #1 should apply to any process wanting to meet the standard. The committee agreed without taking a formal vote.

d. A discussion on FOG ensued. Questions were asked why 20 mg/L FOG shouldn't exist for all treatment levels. After reviewing discussions from past meetings and decisions, the committee decided to leave the 20 mg/L FOG concentrations only for treatment level #1.

e. Melanie Kimsey suggested that maybe the phosphorus standard should be retained because of concerns with shellfish areas and lakes, even if it isn't directly related to public health. John Eliasson replied that representatives from the Department's shellfish section were somewhat concerned by having a standard for phosphorus. Melanie indicated she would like to talk to the Department of Ecology's lakes people and report back at the February meeting. The committee concurred.

f. Melanie Kimsey questioned why the suggested nitrogen standard was increased from 5 mg/L to 20 mg/L in the current list of proposed treatment levels. The response was that the number needed to be realistic and based on current data. 20 mg/L is challenging but attainable. 5 mg/L is not currently realistic based on the currently available technologies and their reliability in reducing nitrogen.

g. John Eliasson presented a handout (**Item #1**) and described revisions to the method of applying treatment levels on which he has been working.
   - Tom Rogers noted that the proposal doesn't contain horizontal setbacks. John responded that the starting point is a normal setback.
   - Melanie Kimsey observed that the methodology appears to be regionally based and may not be applicable to specific sites. She stated a concern with the definition of an aquifer with a low susceptibility that was excessively deep. John responded that some of the resource protection areas are defined, e.g. shellfish growing, water recreation, etc.
   - It was stated that there needed to be some relationship to parcel size.
   - Melanie stated a concern that resource areas will not be adequately defined and that most sites may be dumped into the last level (other areas outside water resource areas). She indicated she thinks this will happen if it is left vague and left up to locals. If we're going to go with one of the approaches, let's do things right. Tom Rogers responded by asking what's wrong with sites being lumped into the last column unless there's a clear sensitivity. There needs to be a good reason to be conservative.

h. Mark Soltman summarized a conceptual document containing an alternative way of applying the levels (**Item #2**). A total negative score would be developed by using the site assessment worksheet. A total positive score would be developed by filling out the protection level worksheet. When adding the two scores together, the sum must be equal to or greater than 0 in order for that set of decisions to be allowable. Depending on system complexity and site sensitivity, a third worksheet looked at system management and frequency of service.

- Kevin Barry indicated he liked the approach but that we probably can't get there in the time frame the rule revision process allows.
- Scott Jones indicated he liked the concept. It needs refinement to make sure we haven't excluded sites that shouldn't be excluded, that the proper balances are there.
- Tom Rogers stated the concept looks and sounds complex, but it may not be as complex at first looks when it is really examined.

i. General discussion occurred about the two approaches that had been presented.

- Kevin Barry asked whether we should go with just vertical separation and soil type or do we want to look at other site risk factors. He'd like to add other factors, such as horizontal setbacks and parcel size.
- Scott Jones and Pam Denton both suggested that a point version (the option presented by Mark Soltman) would be helpful for locals and the design community, but creates difficulty in getting it into rule in a timely fashion.
- Mark Soltman asked the committee: "What level of pretreatment should be required for areas outside resource protection areas with vertical separations of 12 to 24 inches?" A system meeting treatment standard 2 (BOD_5 and TSS of 10 mg/L and a fecal coliform count of 800/100 ml) is currently required. The discussion included the following comments:
  - Septic tank effluent because of a biomat that would form. There was concern with cleaner effluent as there may be no biomat.
  - At least 25/30/1000 or maybe 10^4 fecal coliform would be OK.
  - Lot size, climate, underlying conditions (ground water, type 1 soils) need to be considered.
  - Mark asked whether 10/10/800 should continue to be applied to a vertical separation of 12 to 24 inches. The committee responded that it had already accepted 25 and 30 for the $CBOD_5$ and TSS respectively. The concern is with fecal coliform.
  - Scott Jones asked, "If we have a pretreatment level of 10/10 but the fecal coliform levels are high, will the fecal coliform be retained in the soil?"
  - John Eliasson suggested the following for soils with vertical separations of 12 to 24 inches, with which the committee unanimously agreed:
    - In soil types 1 & 2 – 25/30/1000 with timed, pressure distribution.
    - In soil types 3 through 6 – 25/30/10,000 with timed, pressure distribution.
- Mark Soltman also asked, "What other conditions would allow lesser standards?" Responses included:
  - $CBOD_5$ and TSS of 25/30, respectively, for sizing.
  - Bigger lot sizes
  - Confined aquifers

  - Adequate or larger horizontal separations
  - Helpful ground water gradients
  - Soils that are expected to provide high levels of treatment
- The question was asked whether there are conditions where we should continue to apply treatment standard 1. The response was that it should be required as it is now, for repairs where reduced vertical and horizontal separations exist.
- The question was asked, "Does it make sense to talk about treatment levels unless we can resolve operation and maintenance issues?"
- Melanie suggested some other resource areas: Other groundwater used for water supply, groundwater with known nitrate problems.

2. Technical Issue #16 – Beds

a. Dave Lenning discussed the use of beds. See **Item #3**. He reminded the committee what the current regulations said about beds and informed them of what the 1980 and 2002 USEPA manuals stated about beds.

b. Without taking formal votes, the committee unanimously agreed on the following:
   - The use of beds be allowed only for soil types 1 through 3
   - The maximum width of a bed (except for media filters) be 10 feet
   - No consideration of passive ventilation systems is needed.
   - Scaling the depth of receiving soil when beds are used so linear loading rates are limited should not be considered. This may be reexamined after the staff report on linear loading rates is presented.

Day 2, December 5, 2002

4. Technical Issue #10A – Sand/Media specifications

a. Using his technical report (**See Item 4**), John Eliasson summarized the current specifications for sand media and the results of his literature search.

b. Kevin Barry agreed with the idea of going only with the coarse sand specifications.

c. Tom Rogers and Scott Jones questioned whether we really want to throw out the ASTM C-33 specification. Maybe just the amount of fines should be limited.

d. John Eliasson countered that if we retain the ASTM specification, the loading rates should be lowered and the dosing frequency be increased.

e. Eric Knopf indicated he has nothing but problems with the ASTM specification.

f. Tom Rogers agreed there were problems with the ASTM specification when the amount of fines was high. He reiterated we don't need to drop the ASTM specification, but rather limit the amount of fines passing the #100 sieve to 4%.

g. Mike Vinatieri indicated his health jurisdiction has been using the coarse sand specifications for a couple years without problems. He also indicated that California was successfully using the ASTM specification, but limiting the amount of fines passing the #100 sieve to 4%.

h. Tom Guthrie stated that the Chelan-Douglas Health District has seen few problems with the ASTM specification. He asked if the difference in failure rates could be related to climatic differences. It appears there is less of a problem in Eastern Washington than Western Washington.

i. Dean Bannister suggested the problem with ASTM C-33 is that things are plugging on the top, the infiltrative surface. The problem is not due to proper treatment being provided to effluent flowing through the sand media. Time needs to be spent

on determining how sand filters should be constructed in different environments and climates. Steps should be taken to make taking care of the infiltrative surface of the filter more convenient.

j. Discussion occurred about the real differences between the two specifications currently included in the intermittent sand filter RS&G
   - **Motion:** Tom Rogers – The current coarse sand specification be used, minus the effective particle size and uniformity coefficient requirements
   - **Second:** Mike Vinatieri
   - **Vote:** Unanimous in support of the motion
   - The effect of this vote is to exclude the use of ASTM C-33 media from the various sand-based systems, regardless of what method of distribution is used.
   - Dave Lenning is to check the intermittent sand filter, the sand-lined trench, and mound RS&Gs and see if crushed glass is specifically permitted.

5. Technical Issue 24A – Wastewater tanks

a. Mamdouh El Aarag and Dave Lenning presented a PowerPoint presentation on wastewater tanks to inform the committee members of the following:
   - Summary of the draft report developed in the mid-1990s by Lisa Brown and her committee.
   - Summary of findings from regulations from other states.
   - Summary of the following standards:
     - ASTM
     - IAPMO
     - CAN/CSA
   - The purpose of the presentation was to enlighten the committee members of what currently exists and give them a chance to ask further questions or make comments. After more reading/research the answers/responses could be reported on at the February meeting. The committee will be in a decision-making mode then.
   - Following are the questions/comments received from committee members:
     - <u>Liquid capacity</u>
       - Why do we need to change the numbers we're using currently?
       - We need to address the use of garbage grinders.
       - We need to address the use of grinder and solids pumps that pump raw sewage to septic tanks.
     - <u>Compartments</u>
       - For Washington, length should be 1.25 to 1.5 the width.
       - Scott Jones indicated he prefers a tee in the intercompartmental wall, rather than a slot or port.
       - See if there is data on the difference in performance of tees, slots and ports.
       - Mention three compartment tanks with the third compartment being used for a pump chamber or for an aeration chamber.
     - <u>Access</u>
       - Dean Bannister asked whether the diameters of accesses should be consistent in a septic tank, pump chamber, wet well in an intermittent sand filter, and other tanks. He recommended the committee look at all possible scenarios and try to define proper diameters for each.

  - Questions were asked how risers are attached to the tank. The response was that they are either cast into the tank or some mechanical tie-down is used.
  - The suggestion was made that there should be a look at the long-term structural integrity of lids and risers, especially screw holes that don't strip over time.
- Liquid depth – no comments/questions
- Water tightness
  - Do we need two classes of tanks, as suggested in the DOH report? All tanks should be required to be watertight.
  - Concern with water testing onsite was indicated, due to the need for water and the time needed to run the test.
  - Look at flexible joints and the materials/mechanisms used to assure they are watertight.
- Structural
  - The Oregon specification is missing a depth component
  - The design must account for risers, especially when risers/lids will be driven over – to spread out load.
  - The professional engineer should account for nearby foundations and other structures that may generate a loading.
- Inlets/Outlets
  - In Washington – diameter of at least 4 inches made of materials equal to or better than ASTM 3034.
  - Check ASTM C-564 for gasket materials.
- Other interior dimensions – no comments/questions
- Construction/Specification
  - Oregon specs out non-corroding material, not "non-corrosive"
  - What limits should there be on materials? Should steel tanks be outlawed or should they be permitted when anodized or coated with an epoxy.
- Installation – no comments/questions
- Outlet filters
  - Dave Lenning handed out a summary of the current status of outlet filters, both in Washington State and other states (see **Item 5**)
  - The committee recommended:
    i. Check TRC records for research that was done in order to develop the specifications for outlet filters already contained in the pressure distribution RS&G.
    ii. Look for new research that may have been done on outlet filters.

ADMINISTRATIVE/OTHER ISSUES

1. The next meeting will be at the same location in Ellensburg on February 5-6, 2003
2. The meeting was adjourned

MEETING MATERIALS[1]

Meeting Agenda – December 4-5, 2002

Item #1 – Treatment Level application option 1 – submitted by John Eliasson

Item #2 – Treatment Level application option 2 – submitted by Mark Soltman

Item #3 – Beds – submitted by Dave Lenning

Item #4 – Research Report for Technical Issue 10A (Sand/Media specifications) – submitted by John Eliasson

Item #5 – Status summary of outlet filters (Technical Issue #29) – submitted by Dave Lenning

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[1] All listed meeting materials are maintained by the Department of Health in a meeting manual entitled*: Technical Review Committee Meeting, December 4-5, 2002*. For further information, please contact the Department of Health's Wastewater Management Program at (360) 236-3062.